Consolidated Water Use Efficiency 2002 PSP
PART ONE:

A. Project Information Form

1. Applying for (select one):

☒ (a) **Prop 13 Urban Water Conservation Capital Outlay Grant**

☐ (b) Prop 13 Agricultural Water Conservation Capital Outlay Feasibility Study Grant

☐ (c) DWR Water Use Efficiency Project

2. Principal applicant (Organization or affiliation): **Goleta Water District**

3. Project Title: **Large Meter Replacement Project**

4. Person authorized to sign and submit proposal:

Name, title	**Kevin Walsh** **General Manager**
Mailing address	**4699 Hollister Avenue** **Goleta, CA 93110-1999**
Telephone	**(805) 964-6761**
Fax.	**(805) 964-7002**
E-mail	**kwalsh@goletawater.com**

5. Contact person (if different):

Name, title.	**Matt van der Linden** **Civil Engineer**
Mailing address.	**4699 Hollister Avenue** **Goleta, CA 93110-1999**
Telephone	**(805) 879-4625**
Fax.	**(805) 879-4657**
E-mail	**mvanderlinden@goletawater.com**

6. Funds requested (dollar amount): **$ 85,800.00**

7. Applicant funds pledged (dollar amount): **$ 46,200.00**

8. Total project costs (dollar amount): **$ 132,000.00**

9. Estimated total quantifiable project benefits (dollar amount): **$1,138,592**

Percentage of benefit to be accrued by applicant: **100%**

Percentage of benefit to be accrued by CALFED or others: **0%**

Consolidated Water Use Efficiency 2002 PSP
PART ONE:

A. Project Information Form (continued)

10. Estimated annual amount of water to be saved (acre-feet): **36 AFY**

Estimated total amount of water to be saved (acre-feet): **360 AF**

Over ___ years **10 Years**

Estimated benefits to be realized in terms of water quality, instream flow, other: **NA**

11. Duration of project (month/year to month/year): **9/2002 to 1/2003**

12. State Assembly District where the project is to be conducted: **35**

13. State Senate District where the project is to be conducted: **18**

14. Congressional district(s) where the project is to be conducted: **22**

15. County where the project is to be conducted: **Santa Barbara County**

16. Date most recent Urban Water Management Plan submitted to the Department of Water Resources: **August 2001**

17. Type of applicant (select one):
Prop 13 Urban Grants and Prop 13 Agricultural Feasibility Study Grants:

- ☐ (a) city
- ☐ (b) county
- ☐ (c) city and county
- ☐ (d) joint power authority
- ☒ **(e) other political subdivision of the State, including public water district**
- ☐ (f) incorporated mutual water company

DWR WUE Projects: the above entities (a) through (f) or:

- ☐ (g) investor-owned utility
- ☐ (h) non-profit organization
- ☐ (i) tribe
- ☐ (j) university
- ☐ (k) state agency
- ☐ (l) federal agency

18. Project focus:

- ☐ (a) agricultural
- ☒ **(b) urban**

Consolidated Water Use Efficiency 2002 PSP
PART ONE:

A. Project Information Form (continued)

19. Project type (select one):
Prop 13 Urban Grant or Prop 13 Agricultural Feasibility Study Grant capital outlay project related to:

☐ (a) implementation of Urban Best Management Practices

☐ (b) implementation of Agricultural Efficient Water Management Practices

☐ (c) implementation of Quantifiable Objectives (include QO number(s)

☒ (d) other (specify)

Water Use Efficiency Improvement Project

DWR WUE Project related to:

☐ (e) implementation of Urban Best Management Practices
☐ (f) implementation of Agricultural Efficient Water Management Practices
☐ (g) implementation of Quantifiable Objectives (include QO number(s))
☐ (h) innovative projects (initial investigation of new technologies, methodologies, approaches, or institutional frameworks)
☐ (i) research or pilot projects
☐ (j) education or public information programs
☐ (k) other (specify)

NA

20. Do the actions in this proposal involve physical changes in land use, or potential future changes in land use?

☐ (a) yes

☒ **(b) no**

If yes, the applicant must complete the CALFED PSP Land Use Checklist found at http://calfed.water.ca.gov/environmental_docs.html and submit it with the proposal.

Consolidated Water Use Efficiency 2002 PSP
PART ONE:

B. Signature Page

By signing below, the official declares the following:

The truthfulness of all representations in the proposal;

The individual signing the form is authorized to submit the proposal on behalf of the applicant; and

The individual signing the form read and understood the conflict of interest and confidentiality section and waives any and all rights to privacy and confidentiality of the proposal on behalf of the applicant.

_____ _____
Signature Date

Kevin D. Walsh, General Manager
Name and title

PROPOSAL

FOR FUNDING OF A PROPOSITION 13
URBAN WATER CONSERVATION
CAPITAL OUTLAY GRANT

FOR THE LARGE METER
REPLACEMENT PROJECT

PREPARED BY:

GOLETA WATER DISTRICT

MARCH 1, 2002

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A. Project Information Form

B. Signature Page

PART TWO

A. Scope of Work: Relevance and Importance

1. The objectives of the large meter replacement project are to improve water conservation, increase revenues, decrease maintenance costs and upgrade facilities that are in some cases over 30 years old. By replacing oversized meters with smaller meters, the smaller flows which the large meters are incapable of registering will then be registered. This will result in both additional revenues which are currently lost due to non-capture of low flows, and improved water conservation. Maintenance costs will be reduced since smaller meters require less maintenance.

   Water consumption data is used by the District to manage water resources and implement conservation measures. Replacement of the existing meters with meters that accurately register all flow ranges will provide the District accurate water consumption data to perform advanced planning and prepare budget projections.

2. This project is in part based on the recommendations of the District's Water Distribution Audit Report prepared by JBS Associates, dated February 19, 2001. The audit analyzed data gathered from the District's water distribution system to identify problems and recommend solutions to conserve water and reduce unaccounted for water. The audit found that the seven meters we propose to downsize are among the worst in terms of non-registered low flows. These seven meters are oversized and inaccurate for flows below the threshold of the meters normal operating range. The proposed project addresses this problem. The proposed project is consistent with District and regional water management plans in that it reduces unaccounted for water, promotes water conservation, and recovers lost revenue.

   Due to the coastal location of the Goleta Water District, the District's groundwater and surface water supplies are very limited. In addition, the Goleta groundwater basin is an adjudicated basin with strict limitations on District extractions. The District also has limited entitlement to State Project water that will be used to meet future increases in demand. Therefore, as with most southern California water utilities, water conservation and reduction of unaccounted for water are critical issues. Water conserved with the proposed project will reduce the Districts dependence on Bay-Delta water supplies.

B. Technical/Scientific Merit, Feasibility, Monitoring and Assessment

1. *Technical Merit and Feasibility*. The proposed meter replacement construction consists of the installation of meters, pipe, and fittings that are all industry standard and require only conventional construction techniques. The compact fireline meter assemblies proposed as the replacement meters for this project

have been used in similar installations for many years and comply with ANSI/AWWA Standard C703 Cold Water Meters-Fire Service Type. The proposed project is therefore technically feasible.

2. *Task List and Schedule*. Outlined below is the proposed project work schedule that includes the major tasks relevant to this project. It is assumed due to the relatively straight forward nature of our proposed project that if we are awarded grant funding, a contract can be successfully negotiated with DWR and executed by August 23, 2002.

Task	**Start Date**	**Completion Date**	**Estimated Cost**
Planning		Completed 5/31/01	*
Environmental Documentation		Completed 11/26/01	*
Research & Data Collection		Completed 1/11/02	*
Preliminary Engineering		Completed 2/27/02	$1,050
Final Design	4/3/02	5/17/02	*
Bidding	8/5/02	8/23/02	*
Construction (plus contingency)	9/16/02	12/20/02	$130,950
Monitoring (0 to 6 months)	2/1/03	8/1/03	*
Monitoring (7 to 12 months)	8/2/03	1/31/04	*
Annual Report	12/22/03	2/28/04	*

* Indicates all work performed by in-house GWD staff.

The project deliverables (work products) consist of: 1) final plans, specifications, and cost estimates, and 2) the constructed facilities to replace and rehabilitate each meter setting.

The majority of the District's request for grant funding is for construction costs. Construction of the proposed project will be completed within a three month period, therefore expenditure of most of the requested grant funds ($132,000) will occur over this same three month period. If awarded grant funding on this project the District intends to front the construction costs and submit only one request for reimbursement after completion of construction.

The proposed project includes work at seven meter locations. None of the above tasks are separable, however if only a portion of the project were to be funded, GWD would reduce the number of meters to be replaced proportional to the percentage of funding received.

3. *Monitoring and Assessment*. As part of the Water Distribution Audit Report, data loggers were installed, at three of the seven meters, to measure actual consumption and demand variation over a 24 hour period. The data loggers recorded that from 15% up to 75% of the flows were below the meters normal operating range. The District estimates that after replacement of the meters, the customers response to the higher water bill will be to curtail water use and conserve approximately 33% of the previously non-registered flows. The remaining 67% of the previously non-registered flows will result in increased revenue for the District.

   The District proposes to monitor the annual water consumption of these seven customers to determine how close the volume of water conserved and increased revenue comes to our original estimates. This will be valuable information to assist us in proceeding with future replacement of large meters. On a monthly basis, water consumption will be compared with consumption prior to meter replacement to assess the change in consumption. Should consumption be significantly less than estimated for that particular meter, the meter will be tested for accuracy per AWWA Manual M6 - Water Meters, Selection, Installation, Testing & Maintenance. The Monitoring and Assessment Report included in Appendix A will be completed and submitted to DWR if requested.

4. *Preliminary Plans and Specifications*. Preliminary plans and project specifications are provided in Appendix B. Plans are 90% complete for two of the sites. The plans for the remaining five sites will be similar to these. A single set of plans and specifications has been prepared that combines this project and the Districts proposed Camino Meleno Waterline Replacement Project. Bid items for the two projects will be carefully separated to accurately account for the costs of each project individually. The Engineers Certification Statement is provided in Appendix C.

C. Qualifications of the Applicant

All of the engineering, construction management, and inspection work for the proposed project will be performed by District staff. The District's Project Manager for the proposed project has successfully completed the design for over 50 large meter replacements. The Project Manager and Project Engineer have over 35 years of combined civil engineering experience. Resumes of the District's Project Manager and Project Engineer are included in Appendix D. The only external cooperator that will be involved in this project is the contractor to be hired to construct the project.

D. Benefits and Costs

1. *Budget Breakdown and Justification*. A Construction Cost Estimate and Total Project Cost Estimate are provide in Tables 1 and 2 below.

2. *Cost-Sharing*. The Goleta Water District proposes a 35% and 65% cost sharing arrangement between District funds and DWR Proposition 13 grant funds respectively. Therefore with a total project cost of $132,000, the District proposes to contribute $46,200.

   The District has a pending application for construction grant funds under the Proposition 13 Groundwater Storage Program. The District's matching funds for this project will be appropriated with the Districts Fiscal Year 2002-03 Budget. Due to the relatively small size of our proposed Large Meter Replacement Project, the District does not anticipate any problem in meeting our stated commitment.

3. *Benefit Summary and Breakdown* . The meter replacement work proposed for this project will result in facilities in new condition, with new meters, valves, piping and appurtenances. The proposed Meter Replacement Project will increase revenues, promote water conservation, lower maintenance costs, and in one case improve fire protection. The project benefits are described in detailed below. The proposed project will benefit the Goleta Water District, all District customers, and the local fire department.

   a. *Increased Revenues.* Downsizing these seven meters would add approximately $103,650 in District revenues per year. It is likely these consumers will attempt to conserve water to reduce their bill which will increase due to more accurate flow registration. However, the amount of water that can be conserved is limited, and increased revenues are anticipated.

   b. *Water Conservation.* Water conservation could increase if the consumers use less water in response to their increased bills due to registration of currently unregistered flows. It is reasonable to assume that should the consumers bills increase, they would attempt to lower their bill by using less water. The amount of water thus conserved would still yield increased revenues since there's a limit to the amount of water use that can be reduced.

   c. *Upgrade to Current Standards.* In addition to being oversized, all of these oversized meter assemblies are deteriorated and poorly configured. None of the meter assemblies meet current District specifications with regard to configuration. Deteriorated fittings will be replaced, and each meter vault will be upgraded to current District standards. All piping, meters, and fittings which comprise the meter assemblies, will be sandblasted and painted to prevent corrosion. The upgrades proposed will result in efficient facilities that will not require major maintenance or repairs for about 30 years.

d. *Improved Water Budget Accuracy.* The District generates water purchasing budgets based on current consumption data. Increased accuracy of water consumption data due to capturing currently unregistered flows would increase the accuracy of these budgets.

e. *Increased Fire Protection.* Compact fireline meter assemblies are proposed for the downsized meters. These assemblies consist of a large meter for large fire-protection related flows, and a small meter which capture the low flows. In the event of a fire and/or large downstream demand, a check valve in the assembly opens and the large meter engages. Five of the seven meters proposed to be downsized also provide fire protection. Current meter assemblies which also provide fire protection for interior sprinklers and fire hydrants have check valves that are over 30 years old in a deteriorated condition that may not function properly in the event of fire demands. The proposed compact fireline meter assemblies are specifically designed for this type of application and should offer at least 30 years of service with no major maintenance or repairs. In the case of one proposed meter downsizing, the replacement meter is actually larger than the existing 4" meter. However, the 2" low flow meter of the meter assembly will capture currently unregistered flows. The benefit here is significantly increased fire protection for a public school, and registration of low flows for increased water conservation and revenues to the District.

f. *CALFED Goals.* Water conserved with the proposed project will reduce the Districts dependence on Bay-Delta water supplies.

4. *Assessment of Costs and Benefits*. The Benefit/Cost ratio is calculated to be 8.63 based on projected Water Conservation and Increased Revenues. Calculations are based on present worth values and a 6% discount rate projected over a 10 year period. With such a high Benefit/Cost ratio, the proposed project is clearly beneficial and cost effective. The detailed Benefit/Cost Analysis as well as related information are provide in Table 3 below.

E. Outreach, Community Involvement and Acceptance

In an effort to communicate with and involve the community in the proposed project the Goleta Water District has identified and distributed an informational letter to all properties and individuals that may be affected by the project. Copies of the informational letters are included in Appendix E. The District also distributes a quarterly news letter to all of our customers briefing them on the Districts current and upcoming capital projects.

Prior to finalizing the construction drawings, District staff will meet individually with each affected property owner to review the scope of the work and address any coordination and scheduling issues. Approximately two weeks prior to the start of construction, a follow up letter will be sent to all affected individuals informing them of the dates of

construction and providing them with contact information for the District inspector should they have further questions or concerns.

The District has received letters of support for the proposed project that are also included in Appendix E. The District is not aware of any opposition to the proposed project.

Due to the distance of Goleta from any major metropolitan area, contractors, sub-contractors, and materials suppliers working on District projects are typically local companies. Based upon our past experience constructing similar projects, it is estimated that six (6) local companies will receive economic benefit from the construction of the proposed project as follows: 1 prime contractor, 1 sub-contractor, 2 building materials suppliers, and 2 waterworks materials suppliers. It is estimated that the proposed project will provide full time employment for five (5) people and part time employment (10%-25%) for an additional four (4) people for the duration of construction estimated at three months.

PART THREE

A. Matching Funds Commitment Letter

The Goleta Water District's General Manager has committed the District to contribute matching funds equal to 35% of the total project cost. A signed copy of this commitment letter is provided is Appendix F.

B. Resolution

A draft resolution is included in Appendix G. Should the Goleta Water District be awarded grant funding, this resolution will be adopted by the District Board and provided to DWR prior to execution of a contract with DWR.

C. Environmental Documentation

The proposed Large Meter Replacement Project is a Categorically Exempt project. Please see the CEQA Notice of Exemption included in Appendix H. As a further measure, the Goleta Water District conducted a review of a CEQA Initial Study Checklist and has determined the proposed project will have no significant impacts.

The only permit required for the proposed project is a County of Santa Barbara Encroachment Permit. This is a routine construction permit and will be obtained by the Goleta Water District prior to the start of any construction on this project.

RESOLUTION NO. 2002-

GOLETA WATER DISTRICT

A RESOLUTION TO ACCEPT PROPOSITION 13 URBAN WATER CONSERVATION CAPITAL OUTLAY GRANT FUNDS AND DESIGNATE AN AUTHORIZED REPRESENTATIVE TO EXECUTE THE CONTRACT AND SIGN REQUESTS FOR DISBURSEMENT

BE IT RESOLVED BY THE BOARD OF DIRECTORS OF THE GOLETA WATER DISTRICT AS FOLLOWS:

1. On March 1, 2002, the Goleta Water District submitted a proposal to the California Department of Water Resources (DWR) for funding of the District's proposed Large Meter Replacement Project. The proposal requested a Capital Outlay Grant under the Proposition 13 Urban Water Conservation Program.

2. On [date], DWR approved funding to the District of a Capital Outlay Grant under the above stated Program for the District's Large Meter Replacement Project.

3. The District hereby accepts the Proposition 13 Urban Water Conservation Capital Outlay Grant and designates Kevin D. Walsh, General Manager as its authorized representative to execute the contract and sign requests for disbursement.

PASSED AND ADOPTED by the Board of Directors this ____ day of _____, 2002 on the following roll call vote:

Ayes: Directors

Nay:

Abstain:

Absent:

ATTEST:

_____ _____

MARIE E. ZEMAN, DISTRICT SECRETARY LARRY MILLS, PRESIDENT

February 25, 2002

California Department of Water Resources
Office of Water Use Efficiency
P.O. Box 942836, Sacramento, CA 94236-0001
Attention: Marsha Prillwitz

Subject: Proposal for Proposition 13 Urban Water Conservation Capital Outlay Grant
Large Meter Replacement Project
Commitment of Matching Funds

Dear Ms. Prillwitz:

The Goleta Water District is pleased to submit a proposal for the Proposition 13 Urban Water Conservation Capital Outlay Grant. We believe we have a strong candidate for the grant. Our proposed project replaces seven oversized meters which are over 30 years old and do not provide accurate measurement. The replacement project will provide accuracy in water budgeting, water conservation, improved flow for fire protection and attainment to current standards. The estimated cost to replace the meters is $132,000, and the estimated benefit-cost ratio is 8.6.

By this letter the Goleta Water District hereby commits to funding 35% ($46,200) of the total cost of the proposed project.

Please contact me at (805) 879-4621 if you have any questions.

Sincerely,
Goleta Water District

Kevin D. Walsh
General Manager

February 25, 2002

California Department of Water Resources
Office of Water Use Efficiency
P.O. Box 942836, Sacramento, CA 94236-0001
Attention: Marsha Prillwitz

Subject: Proposal for Proposition 13 Urban Water Conservation Capital Outlay Grant
Large Meter Replacement Project
Commitment of Matching Funds

Dear Ms. Prillwitz:

The Goleta Water District is pleased to submit a proposal for the Proposition 13 Urban Water Conservation Capital Outlay Grant. We believe we have a strong candidate for the grant. Our proposed project replaces seven oversized meters which are over 30 years old and do not provide accurate measurement. The replacement project will provide accuracy in water budgeting, water conservation, improved flow for fire protection and attainment to current standards. The estimated cost to replace the meters is $132,000, and the estimated benefit-cost ratio is 8.6.

By this letter the Goleta Water District hereby commits to funding 35% ($46,200) of the total cost of the proposed project.

Please contact me at (805) 879-4621 if you have any questions.

Sincerely,
Goleta Water District

Kevin D. Walsh
General Manager

CERTIFICATION STATEMENT

Engineering Feasibility Statement

I, Matthew J. van der Linden, a California registered civil engineer, have reviewed the information presented in support of this application. Based on this information, and any other knowledge I have regarding the proposed project, I find that it can be designed, constructed, and operated to accomplish the purpose for which it is planned. The information I have reviewed to document this statement includes the following: field visit to site(s), recent GWD studies and reports, GWD record drawings, public utility record maps, manufacturers literature on meters and waterline appurtenances, preliminary construction drawings, preliminary specifications, and engineers cost estimates.

_____

Signature

Large Meter Replacement Project
Goleta Water District Project No. 01-3366

Monitoring and Assessment Report

	A			B	A + B			
Customer Name	**1996 to 2001 Average Annual Consumption (HCF)**	**Estimated 2001 Unmetered Consumption (HCF)**	**33% of Estimated 2001 Unmetered Consumption (HCF)***	**67% of Estimated 2001 Unmetered Consumption (HCF)***	**Estimated Annual Consumption after Meter Replacement (HCF)**	**Actual Annual Consumption after Meter Replacement (HCF)****	**Test Low Flow Meter for Accuracy? Yes/No**	**Field Measured Low Flow Meter Accuracy (If applicable)**
San Marcos High School		2,246	741	1,505				
Lakeside Mobileers		11,677	3,853	7,824				
UCSB Campus (El Colegio Rd.)		12,211	4,030	8,181				
Santa Ynez Apartments		6,282	2,073	4,209				
Francisco Torres Tower		3,352	1,106	2,246				
Devereux Foundation		4,859	1,603	3,256				
Bacara Resort		6,395	2,110	4,285				

Notes:

* As part of the Water Distribution Audit Report, data loggers were installed, at three of the seven meters, to measure actual consumption and demand variation over a 24 hour period. The data loggers recorded that from 15% up to 75% of the flows were below the meters normal operating range. The District estimates that after replacement of the meters, the customers response to the higher water bill will be to curtail water use and conserve approximately 33% of the previously non-registered flows. The remaining 67% of the previously non-registered flows will result in increased revenue for the District.

** From 2/2003 to 2/2004

Should consumption be significantly less than estimated for that particular meter, the meter will be tested for accuracy.

DAVID D. IVERSON
Project Engineer

PROFESSIONAL SUMMARY

- 24 Years of Civil Engineering Experience
- 20 Years of Waterworks Design and Engineering Experience
- 17 Years of Waterworks Construction Inspection Experience
- 5 Years of Project Management Experience

RELATED PROJECT EXPERIENCE

Project, and Location	Position	Responsibilities
University Dr. Bridge Pipeline Replacement Project, Goleta, CA	Project Manager	Managed the construction of 100 ft. of 10" diameter steel waterline within a bridge. Also planchecked, inspected and assisted in the design.
Lateral 9-D-14 Waterline Replace-ment Project, Goleta, CA	Project Manager	Managed the design and construction of 400 ft. of 8" diameter PVC waterline in Chapel Street. Also performed plancheck and inspected construction.
Install Eight 6" and One 4" Reclaimed Water Meters, USCB Campus, Goleta, CA	Project Engineer	Performed plancheck, administered, assisted in design, and inspected construction of 9 large reclaimed water meters.
6" Meter Relocation – Devereux School, Goleta, CA	Project Engineer	Performed plancheck, and assisted in project administration and design.
Two 6" Meter Installations @ Fortuna & Pasado Rd., Isla Vista, CA	Project Engineer	Performed plancheck, and assisted in project administration and design.
Relocate 360 linear ft. of Lateral 17-K and 10" Meter, Santa Barbara, CA	Project Engineer	Performed plancheck, assisted in project administration and design, and inspected construction.

PERSONAL DATA

Education: Site Development Specialist Course (United States Air Force Technical Training School) 1977; College drafting courses (1981)

Certifications: MW Soft Water Distribution Modeling – H20 Net Training Course (2000), AutoCAD Design & Drafting (1998).

Affiliations: American Water Works Association

Continuing Education: ASCE Rehabilitation of the Pressure Pipe Network (2002), Designing and Installing HDPE Piping Systems (2001), ASCE Managing Multiple Projects, Objectives and Deadlines (2000), Surveying Automation – GPS Surveying Technology & Application (1989), Practical Hydraulics Workshop (1985).

MATTHEW J. VAN DER LINDEN, P.E.
Project Manager

PROFESSIONAL SUMMARY

- 16 Years of Civil Engineering Experience
- 12 Years of Project Management Experience
- Municipal Engineering and Private Consulting Experience
- Well Rounded Planning, Design, and Construction Experience
- Provided Consulting Services to Over 25 Water Utilities
- Designed or Managed Over 50 Pipeline Projects

RELATED PROJECT EXPERIENCE

Project, and Location	Position	Responsibilities
Goleta Water District, Waterline Replacement Projects, Goleta, CA	Project Manager	Manage the planning, design and construction of annual waterline replacement projects throughout Goleta including associated meter replacements.
Southern California Water Company, Large Meter Replacement Program, Los Angeles, CA	Project Engineer	Prepared plans for the replacement of fifty-eight 3- through 10-inch turbine, compound and fireline meters. Performed detailed field evaluation of each meter, as well as flow rate calculations and design of new meter setting.
City Waterline Replacement Project 1993-94, Bell Gardens, CA	Project Engineer	Prepared plans and specifications for the replacement of 5,400 linear feet of 8- and 12-inch PVC pipe, including replacement of existing services and meters.
City Waterline Replacement Project 1992-93, Paramount, CA	Project Engineer	Prepared plans and specifications for the replacement of 8,000 linear feet of 8-inch PVC pipe, including replacement of existing services and meters.
City of Lakewood/City of Cerritos, Water System Emergency Interconnect, Lakewood/Cerritos, CA	Project Engineer	Prepared plans and specifications for a 6,500 gpm emergency interconnect between the water systems of the City of Lakewood and City of Cerritos. The interconnect included a 16-inch bi-directional propeller meter and a 16-inch pressure reducing/ pressure sustaining

Project, and Location	Position	Responsibilities
		valve.
EVMWD, Bundy Canyon Road Transmission Pipeline, Lake Elsinore, CA	Project Engineer	Prepared improvement plans for 3,800 linear feet of 24-inch PVC waterline in Bundy Canyon Road. The waterline was designed to connect the existing Farm Booster Pumping Station with the existing transmission main in Mission Trail.
CBMWD, RP-4 Outfall and Re-claimed Water Distribution System Projects, Ontario/Rancho Cucamonga, CA	Project Engineer	Assisted with planning and construction management of 44,000 feet of 36--inch and 42-inch diameter steel reclaimed waterline. Prepared Preliminary Design Reports for a 12 mgd and 20 mgd pump station, and a 2.2 MG cast-in-place concrete reservoir and chlorination facilities.
City of Artesia, Water System Master Plan, Artesia, CA	Project Engineer	Performed computer model of the water system. Calculated future system demands, and developed capital improvement program for replacement of old and undersized mains, and upgrade of the supply and distribution system.

PERSONAL DATA

Education: B.S. Civil Engineering, California State University, Long Beach, 1986

Professional Registrations: California, RCE No. 46295; Nevada, RCE No. 10749, The California Community Colleges, Limited Service Teaching Credential in Engineering

Publications: "Implementing a Large Meter Replacement Program," Journal AWWA, August 1998

Affiliations: American Water Works Association; American Society of Civil Engineers

Continuing Education:
Rehabilitation of the Pressure Pipe Network - ASCE
Standardized Emergency Management System – State OES
Writing Specifications and Special Provisions – UC Berkeley
Avoiding Construction Claims & Cost Overruns - CMD&T
Waterwell Design and Construction - AWWA
Urban Irrigation and Reclaimed Wastewater – UC Riverside

Wastewater Pipelines-Design Life Seminar - ACPA